Grade 7
Mathematics

Constructed Response
Scoring Guides
Winter 2000

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Winter 2000 Grade 7
MEAP Mathematics Scoring Guides

These scoring guides and annotated papers are provided to help you evaluate and score the constructed-response items on the Winter 2000 MEAP mathematics test. For each item a rubric and an exemplar answer are given. Student papers are provided to illustrate the rubric. The annotation are on a separate page, so that the student papers can be copied and scored as part of training.

The scoring guides provided here represent only one possibility. You may decide to create your own scoring rubric. You may want to require that spelling and grammar are part of scoring, as well as labeling (units and graphs), and showing all work. Feel free to adjust and revise the scoring guide to fit your needs.

General Recommendations and Guidelines

- Studying the sample student responses and annotations will help you understand the essence of what is expected at each score point for a particular question. Keep in mind that these sample student responses represent only a few of the many possible responses for a given score point.

- To ensure the accuracy and consistency of your scoring:

1. Continually review the scoring rubric and the sample student papers, especially when you are in doubt about a particular response.
2. Do not judge one student's paper against another. Instead, apply the same objective criteria to each paper by evaluating the response in terms of the scoring guide.
3. It is advisable to conceal student names when scoring.
4. Review papers you scored earlier in the process to make sure you are using the same criteria.

**** Please note that Question 1, Part A ask students to produce a spinner with which the color red is "most likely." The scoring rubric developed for this question uses the term "most likely" to imply maximizing the probability of a red spin. Consequently, 4 parts of the spinner must be labeled red for a correct answer. It is possible to use the term "most likely" to imply a red spin as the most likely occurrence of the three possible color's in the question. If you chose to use this interpretation, simply adjust the scoring rubric to accept either 3 or 4 parts of the spinner labeled red as a correct answer. You may also want to supply some additional clarification for your students if you feel it would be helpful.**

Grade 7 - The Spinner
Scoring Rubric

4 points Response contains all four spinners correctly labeled with no meaningful errors.

3 points Response contains an appropriate strategy showing significant understanding of probability. May contain minor errors but student could complete the solution with a non-instructional error. Example: 3 spinners correct; one contains errors such as incorrect color(s) or number(s).

2 points Response begins with an appropriate strategy and shows some understanding of probability. Contains some errors requiring further instruction. At least 2 spinners are correct; other 2 contain errors.

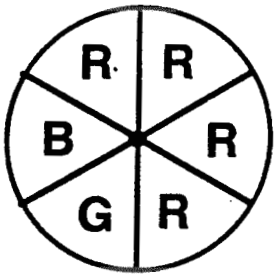
1 point Response shows an attempt at some strategy but shows minimal understanding of probability. Contains serious errors such as using colors/numbers not listed.

0 points Response contains no apparent strategy and shows no understanding of probability. Example: Student mixes colors and numbers on same spinner.

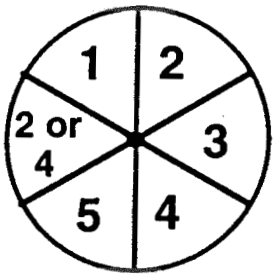
Grade 7 - The Spinner
Exemplar

Part A There must be 4 sections labeled red, one blue and one green in any location on the color spinner. The numbers 1, 2, 3, 4, 5 must be used with either 2 or 4 in the sixth section.

Colors

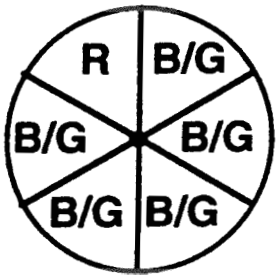


Numbers

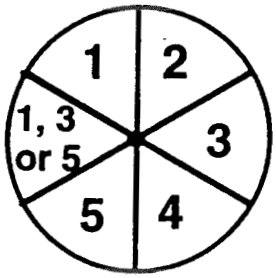


Part B There must be one section labeled red on the color spinner. The other 5 must be labeled blue or green. All five numbers must be used on the number spinner. The sixth section must be labeled 1, 3 or 5.

Colors



Numbers



Directions: Solve the following problem. There may be more than one way to answer correctly. Show as much of your work as possible.

Design spinners following the directions in Parts A and B by using **ALL** the colors and numbers listed.

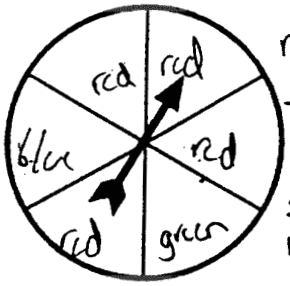
Colors
red
blue
green

Numbers
1
2
3
4
5

4 POINTS
All spinner sections correctly labeled; explanation included.

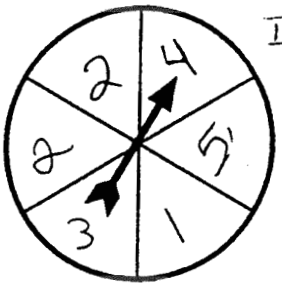
A. **To complete these spinners, label each section with the colors and numbers that will produce the probability that spinning red and an even number is most likely.**

Colors



red appears three times in the two extra spaces so spinning an red has a higher percentage

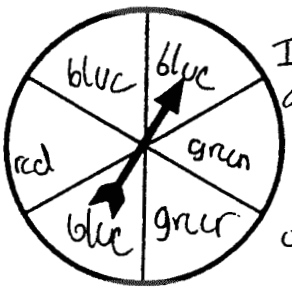
Numbers



I filled on an extra even number in the blank spaces so it's a higher percentage of getting an even number

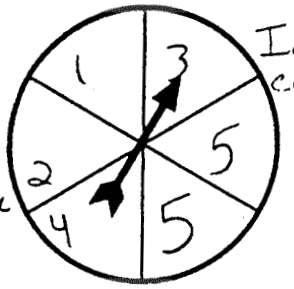
B. **To complete these spinners, use colors and numbers so the probability of spinning red and an even number is least likely.**

Colors



I only put one red in and the circle and the rest with the other colors so the percentage of landing on red is lower

Numbers



I only put the two even numbers in the circle and the rest odd numbers

Directions: Solve the following problem. There may be more than one way to answer correctly. Show as much of your work as possible.

Design spinners following the directions in Parts A and B by using **ALL** the colors and numbers listed.

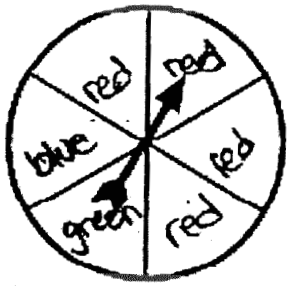
Colors
red
blue
green

Numbers
1
2
3
4
5

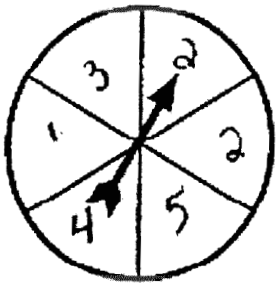
3 POINTS
All spinner sections in Part A correctly labeled Color sections in Part B incorrectly labeled. Number sections in Part B correctly labeled.

A. To complete these spinners, label each section with the colors a
produce the probability that spinning red and an even number is

Colors

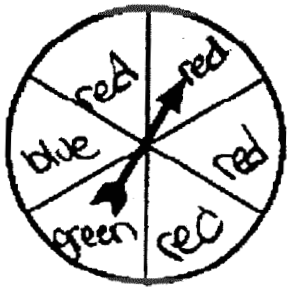


Numbers

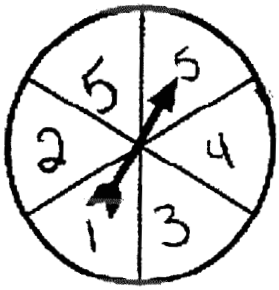


B. To complete these spinners, use colors and numbers so the probability of spinning red and an even number is **least likely.**

Colors



Numbers



Directions: Solve the following problem. There may be more than one way to answer correctly. Show as much of your work as possible.

Design spinners following the directions in Parts A and B by using **ALL** the colors and numbers listed.

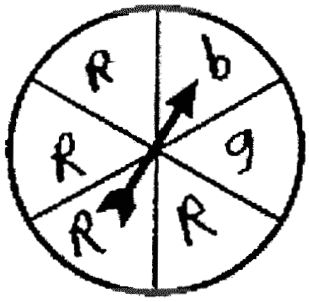
Colors
red
blue
green

Numbers
1
2
3
4
5

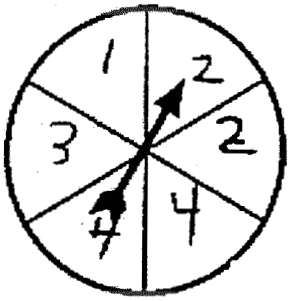
3 POINTS
All color sections in Part A correctly labeled; number sections, incorrect. All sections in Part B correctly labeled.

A. To complete these spinners, label each section with the colors and ... that will produce the probability that spinning red and an even number is **most likely.**

Colors

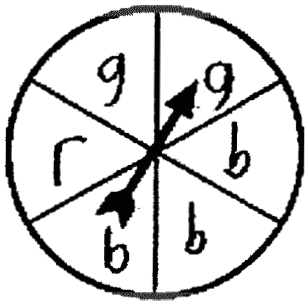


Numbers

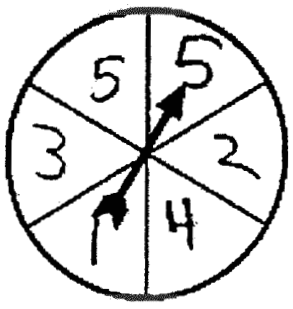


B. To complete these spinners, use colors and numbers so the probability of spinning red and an even number is **least likely.**

Colors



Numbers



Directions: Solve the following problem. There may be more than one way to answer correctly. Show as much of your work as possible.

Design spinners following the directions in Parts A and B by using **ALL** the colors and numbers listed.

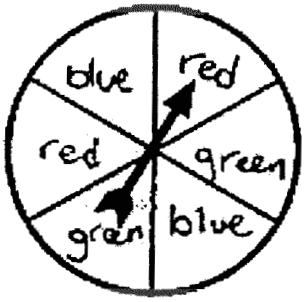
Colors
red
blue
green

Numbers
1
2
3
4
5

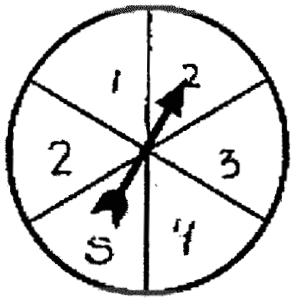
2 POINTS
Color sections labeled incorrectly in both Parts A and B. Number sections labeled correctly in both Parts A and B.

A. To complete these spinners, label each section with the colors and nu... produce the probability that spinning red and an even number is **most likely.**

Colors

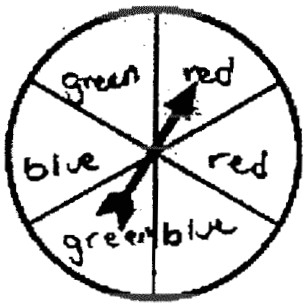


Numbers

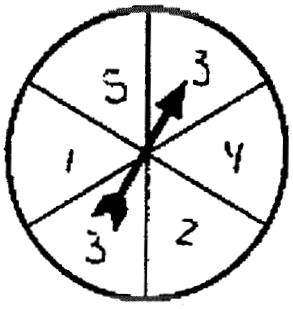


B. To complete these spinners, use colors and numbers so the probability of spinning red and an even number is **least likely.**

Colors



Numbers



Directions: Solve the following problem. There may be more than one way to answer correctly. Show as much of your work as possible.

Design spinners following the directions in Parts A and B by using ALL the colors and numbers listed.

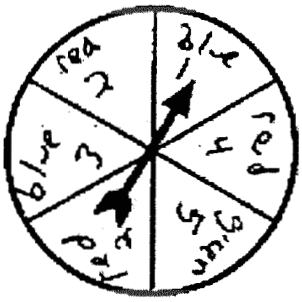
Colors
red
blue
green

Numbers
1
2
3
4
5

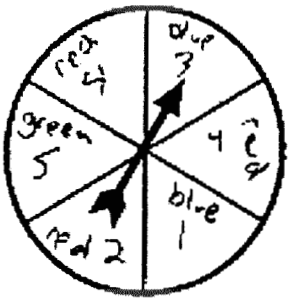
3 POINTS
Color sections labeled incorrectly in both Parts A and B. Number sections labeled correctly in both Parts A and B. Both colors and numbers included in every section on all spinners.

A. To complete these spinners, label each section with the color and number to produce the probability that spinning red and an even number is

Colors

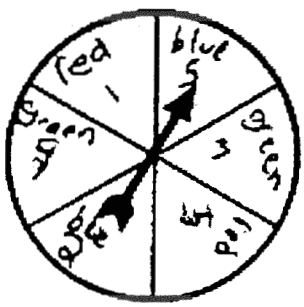


Numbers

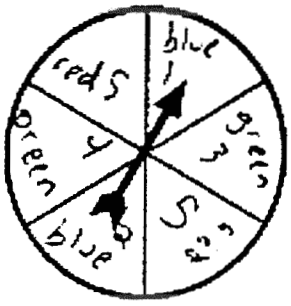


B. To complete these spinners, use colors and numbers so the probability of spinning red and an even number is least likely.

Colors



Numbers



Directions: Solve the following problem. There may be more than one way to answer correctly. Show as much of your work as possible.

Design spinners following the directions in Parts A and B by using ALL the colors and numbers listed.

Colors
red
blue
green

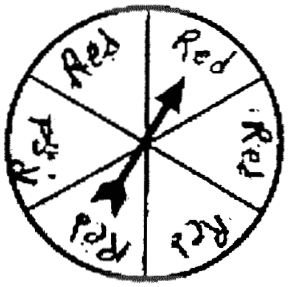
Numbers
1
2
3
4
5

1 POINT

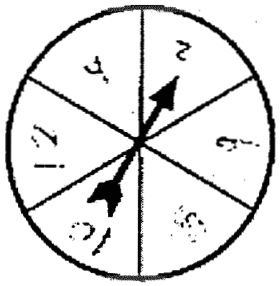
All colors not used in Part A. First six consecutive even numbers (instead of 1-5) used to incorrectly label number sections in Part A. Colors not listed used to label color sections in Part B. First six consecutive odd numbers (instead of 1-5) used to incorrectly label number sections in Part B.

A. To complete these spinners, label each section with the
produce the probability that spinning red and an even nu

Colors



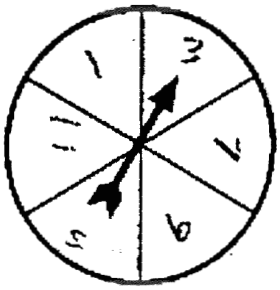
Numbers



B. To complete these spinners, use colors and numbers so the probability of spinning red and an even number is least likely.

Colors

Numbers



Directions: Solve the following problem. There may be more than one way to answer correctly. Show as much of your work as possible.

Design spinners following the directions in Parts A and B by using ALL the colors and numbers listed.

Colors
red
blue
green

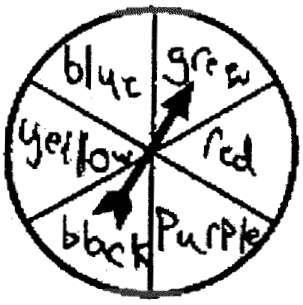
Numbers
1
2
3
4
5

0 POINTS

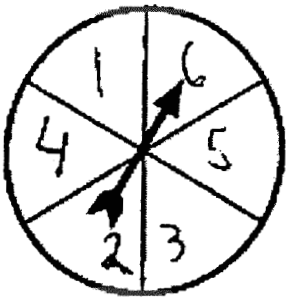
Colors and numbers not listed used to label sections in Part A. Mixed colors and numbers on same spinner in Part B. Shows no understanding of probability.

A. To complete these spinners, label each section with the colors produce the probability that spinning red and an even number is ...

Colors

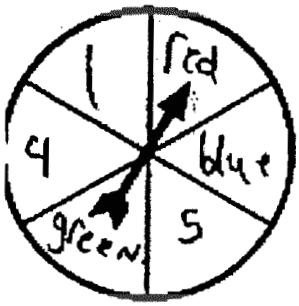


Numbers

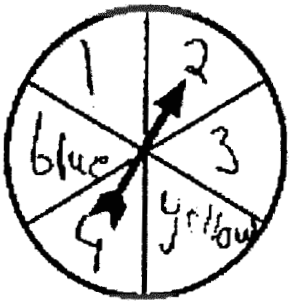


B. To complete these spinners, use colors and numbers so the probability of spinning red and an even number is least likely.

Colors:



Numbers



Grade 7 - Ken and Berry
Scoring Rubric

4 points Response contains correct measurements in Part A; sketch and measurements those in Part B match Part A. Response shows complete understanding of the concept of volume.

3 points Response may contain minor errors in either measurements or sketch in Parts A/B. Response shows significant understanding of the concept of volume.

2 points Although response shows some understanding of the concept of volume, it may contain errors in interpretation of the problem. Some measurements or the sketch may contain meaningful errors that require additional instruction prior to the student being able to label the measurements and draw the sketch correctly.

1 point Response shows minimal understanding of the the concept of volume. It may contain serious errors in measurements of the sketch but shows some reasoning regarding the problem.

0 points Response shows no understanding of the concept of volume. Supporting measurements and sketch contain serious errors with no apparent reasoning.

Grade 7 - KEN AND BERRY
Exemplar

A The box may be labeled with any of the following measures.

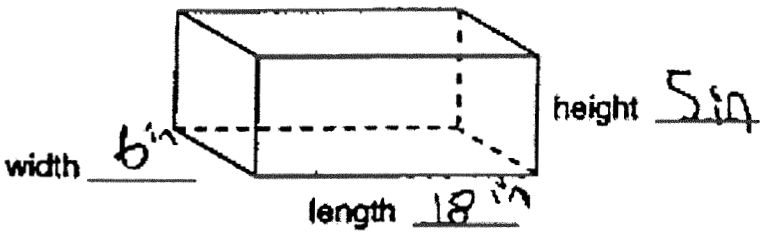
Length	Width	Height
3	9	20
3	36	5
3	18	10
3	12	15
6	6	15
6	9	10
6	18	5
9	12	5

B Box top should be labeled with width and length matching Part A. Sketch, also, should match measurements in Part A.

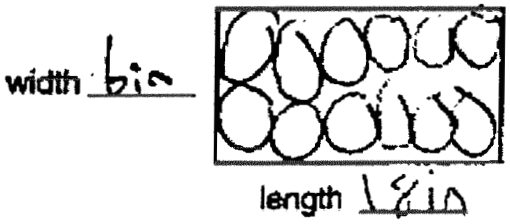
Directions: Solve the following problem. There may be more than one way to answer correctly. Show as much of your work as possible.

Ken and Berry own an ice cream company. They make a special Michigan cherry flavored chocolate sauce and mail it to their customers in boxes of 12 cans. The can's diameter measures 3 inches and its height is 5 inches. Use these measurements to determine the size of the shipping box Ken and Berry will need.

A Label the drawing with the measurements you would use. The cans should fit tightly so they will not dent during shipping.



B Sketch the view of the tops of the cans when you open the box. Draw the circles as best you can without a compass. Use the measurements you determined in the drawing above.



4 POINTS

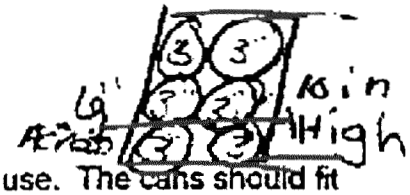
Correct measurements in Part A; correct sketch in Part B; measurements in Part B match those in Part A.

Directions: Solve the following problem. There may be more than one way to answer correctly. Show as much of your work as possible.

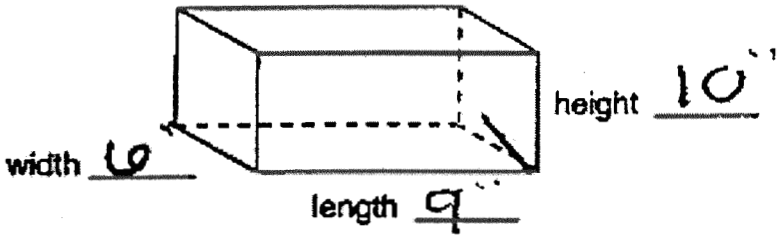
3 in 5 in

Ken and Berry own an ice cream company. They make a special Michigan cherry flavored chocolate sauce and mail it to their customers in boxes of 12 cans. The can's diameter measures 3 inches and its height is 5 inches. Use these measurements to determine the size of the shipping box Ken and Berry will need.

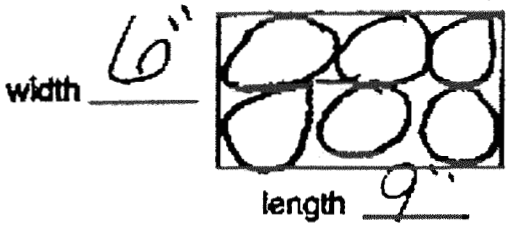
The Size box will be 6X 10 in Box.



A Label the drawing with the measurements you would use. The cans should fit tightly so they will not dent during shipping.



B Sketch the view of the tops of the cans when you open the box. Draw the circles as best you can without a compass. Use the measurements you determined in the drawing above.



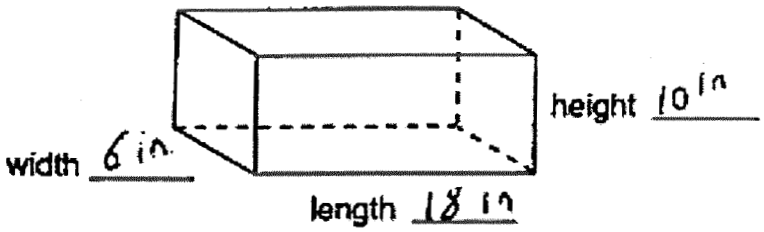
4 POINTS

Correct measurements in Part A; correct sketch in Part B; measurements in Part B match those in Part A. Response also shows visualization skills.

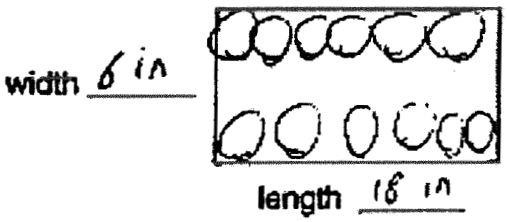
Directions: Solve the following problem. There may be more than one way to answer correctly. Show as much of your work as possible.

Ken and Berry own an ice cream company. They make a special Michigan cherry flavored chocolate sauce and mail it to their customers in boxes of 12 cans. The can's diameter measures 3 inches and its height is 5 inches. Use these measurements to determine the size of the shipping box Ken and Berry will need.

A Label the drawing with the measurements you would use. The cans should fit tightly so they will not dent during shipping.



B Sketch the view of the tops of the cans when you open the box. Draw the circles as best you can without a compass. Use the measurements you determined in the drawing above.



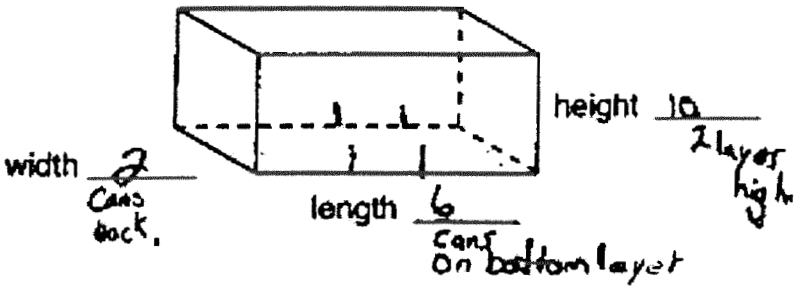
3 POINTS

Response contains a minor measurement error in Part A. Height is 10 instead of 5; correct sketch and measurements in Part B.

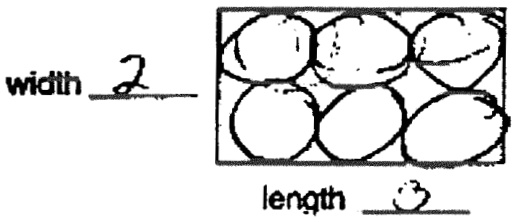
Directions: Solve the following problem. There may be more than one way to answer correctly. Show as much of your work as possible.

Ken and Berry own an ice cream company. They make a special Michigan cherry flavored chocolate sauce and mail it to their customers in boxes of 12 cans. The can's diameter measures 3 inches and its height is 5 inches. Use these measurements to determine the size of the shipping box Ken and Berry will need.

A Label the drawing with the measurements you would use. The cans should fit tightly so they will not dent during shipping.



B Sketch the view of the tops of the cans when you open the box. Draw the circles as best you can without a compass. Use the measurements you determined in the drawing above.



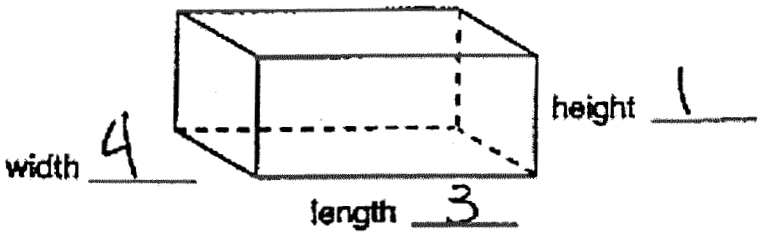
2 POINTS

Response shows some understanding of volume. Length and width are incorrectly labeled by number of cans instead of inches.

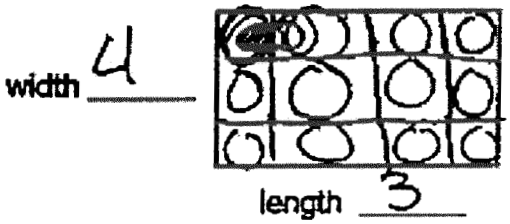
Directions: Solve the following problem. There may be more than one way to answer correctly. Show as much of your work as possible.

Ken and Berry own an ice cream company. They make a special Michigan cherry flavored chocolate sauce and mail it to their customers in boxes of 12 cans. The can's diameter measures 3 inches and its height is 5 inches. Use these measurements to determine the size of the shipping box Ken and Berry will need.

A Label the drawing with the measurements you would use. The cans should fit tightly so they will not dent during shipping.



B Sketch the view of the tops of the cans when you open the box. Draw the circles as best you can without a compass. Use the measurements you determined in the drawing above.



1 POINT
Response shows minimal understanding of the problem. Measurements shown in cans instead of inches in both Parts A and B.

Directions: Solve the following problem. There may be more than one way to answer correctly. Show as much of your work as possible.

Ken and Berry own an ice cream company. They make a special Michigan cherry flavored chocolate sauce and mail it to their customers in boxes of 12 cans. The can's diameter measures 3 inches and its height is 5 inches. Use these measurements to determine the size of the shipping box Ken and Berry will need.

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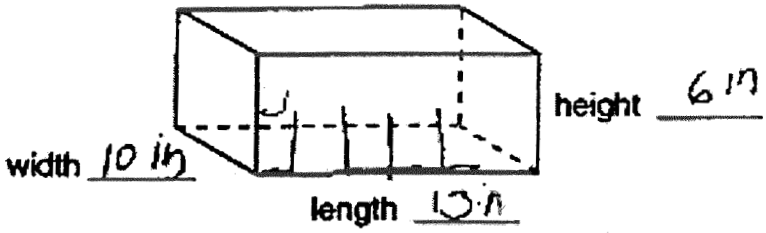
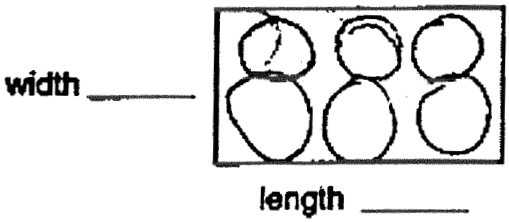


B Sketch the view of the tops of the cans when you open the box. Draw the circles as best you can without a compass. Use the measurements you determined in the drawing above.



0 POINTS
Response contains no apparent strategy. All measurements in Part A are incorrect. No measurements in Part B.